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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/800,470

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Xu Zhu

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JONES DAY

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NEW YORK, NY 10017

EXAMINER

ANYA, IGWE U

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/800,470	Applicant(s) ZHU ET AL.	
	Examiner Igwe U. Anya	Art Unit 2891	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Yun et al. (USPAB 2004/0063237).

3. Yu et al. teach a process, comprising:

performing certain process steps from the top side of a substrate carrying a plurality of devices, at least certain of the devices having a micro-machined mesh (fig. 1);

reducing the thickness of the substrate carrying a plurality of devices (figs. 2 – 3);  
using a carrier wafer (wafer 2) attached to the top of the substrate, while at least certain process steps are performed from the backside (figs. 3 – 4); and

using a carrier wafer (wafer 3) attached to the backside of the substrate, while at least certain process steps are performed from the topside (figs. 5 – 6).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2891

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yun et al. (USPAB 2004/0063237) in view of Rice (US Patent 6624003).

7. Yun et al. teach a process, comprising:

performing certain process steps from the top side of a substrate carrying a plurality of devices, at least certain of the devices having a micro-machined mesh (fig. 1);

attaching a carrier wafer (wafer 2) to the top of the substrate (fig. 2),

reducing the thickness of the substrate (fig. 3);

continuing the process of fabricating the plurality of devices from the backside of the substrate (figs. 4, 5); and

releasing the micro-machined meshes from the topside of the substrate (paragraphs 51 & 37);

wherein said performing includes forming and patterning a layer of resist (paragraph 53);

wherein said performing includes forming a plurality of meshes (fig. 1);

wherein said continuing includes forming vent holes (fig. 4);

attaching a carrier wafer (fig. 5, wafer 3) to the backside of the substrate and removing the carrier wafer from the topside of the substrate (fig. 6); and

wherein the device is a MEMS device (paragraph 40).

8. Yun et al. lack:

sealing the released micro-machined meshes; and

singulating the plurality of devices.

9. However, Rice teaches:

sealing the released micro-machined meshes (col. 8 lines 28 – 67); and

singulating a plurality of MEMS devices formed a substrate (col. 3 lines 6 - 16)..

10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to seal the released micro-machined meshes to protect the fragile mesh and singulate the plurality of MEMS devices for application in circuits.

### ***Response to Arguments***

11. Applicant's arguments filed March 14, 2007 have been fully considered but they are not persuasive.

12. Yun et al. teach a carrier wafer (fig. 2 element labeled "wafer 2") on the front side of the substrate and using "wafer 2" to perform backside processing (paragraph 28). Attaching an IC/Carrier Wafer (fig. 5 element labeled "wafer 3") on the backside of the

MEMS structure and using "wafer 3" to perform front-side processing (fig. 6, paragraphs 36 – 37). In addition to "wafer 3" being an IC wafer, it is also used as a handling/carrier wafer to perform front-side processing of the MEMS structure. Carrier wafer and Handle wafer are synonymous. Please see for example Kim et al. (US Patent 6762076, col. 2 lines 18 – 30) or Nance et al. (US Patent 6156621, col. 1 lines 9 – 17).

13. Applicant argues the micro-machined devices do not constitute a mesh, because Yun et al. do not specifically use the word mesh. However, Yun et al. teach openings or apertures in between the three planar topmost structures of the devices (fig. 1).

Examiner has included the dictionary definition of "mesh".

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

**Contact Information**

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Igwe U. Anya whose telephone number is (571) 272-1887. The examiner can normally be reached on M - F 8:30am - 5:00pm.


16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Igwe U. Anya  
Examiner  
Art Unit 2891

IA

June 06, 2007



**B. WILLIAM BAUMEISTER**  
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